

## **REMARKS/ARGUMENTS**

By the *Final Office Action* of 12 May 2009, Claims 1 and 4-21 are pending in the Application, and all rejected. Applicants thank Examiner with appreciation for the careful consideration and examination given to the Application.

Applicants submit this *Response* solely to facilitate prosecution. As such, Applicants reserve the right to present new or additional claims in this Application that have similar or broader scope as originally filed. Applicants also reserve the right to present additional claims in a later-filed continuation application that have similar or broader scope as originally filed. Accordingly, any amendment, argument, or claim cancellation presented during prosecution is not to be construed as abandonment or disclaimer of subject matter.

By the present *Response*, Claims 1 and 4-21 remain pending. No new matter is believed presented, and all pending Claims believed allowable.

### **1. The Present Claims**

Claims 1 and 4-21 are previously presented and currently pending. No amendments to the claims are provided in this *Response*. The various recitations not found in the claims can be found in the *Specification* as originally filed.

As discussed in more detail below, it is the combination of these features that allow for the production of a multilayer washable material, which can be cut to the desired shape, without suffering from delamination and without having to undergo an edge finishing step. As also noted in detail below, the recitations of Claims 1 and 4-21 are not taught, suggested, or disclosed in the cited references, and thus Applicants respectfully submit are patentable.

### **2. The Claim Rejections**

In the *Final Office Action*, Claims 1, 4-10, 13-15, and 18-21 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 5,306,267 to Hahn et al. ("Hahn") in view of U.S. Patent No. 5,114,418 to Levy ("Levy") and U.S. Patent Publication No. 2001/0001300 to Tolbert et al. ("Tolbert"). In addition, Claims 11-12 and 16-17 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Hahn in view of Levy and Tolbert, and further in view of U.S. Patent No. 4,911,948 to McIntyre.

It is respectfully submitted that Claims 1 and 4-21 are novel and non-obvious over the cited references, as none, alone or in combination, disclose, teach or suggest the invention of Claims 1 and 8, nor the Claims that ultimately depend from Claims 1 and 8.

Applicants thank the Examiner for noting that the arguments and amendments in the Applicants' *Response* of 10 February 2009 were fully considered and that the rejections under 35 U.S.C. §§ 102(b) and 112 have been withdrawn.

### **3. Claims 1 and 4-21 Are Patentable Over The Cited References**

Claims 1 and 4-21 are pending and presently rejected. Applicants respectfully request reconsideration for the pending claims in view of the below remarks. Applicants respectfully submit that the cited references alone or in combination fail to teach, suggest, or disclose the recitations in the pending claims, and thus the pending claims are patentable over the cited references.

#### **A. Claims 1, 4-10, 13-15, and 18-21 Are Patentable Over The Cited References**

As noted, Claims 1, 4-10, 13-15, and 18-21 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Hahn in view of Levy and Tolbert.

Unlike the cited references, the present invention relates to a washable underpad. The primary cited reference, Hahn, does not relate to a washable underpad. Instead, Hahn discloses and relates to a reusable diaper. Despite the many similarities between the claimed invention and Hahn, there are essential differences.

For instance, the essential feature of a diaper is that it is shaped to provide comfort to the wearer to absorb waste of the wearer. Fig. 2 of Hahn is a perspective view of the Hahn invention as it would appear during use on an infant. Indeed, the diaper **10** of Hahn is snugly configured about the waist and legs of an infant such that leakage is prevented therefrom (see, e.g., Hahn, Col. 4, ll. 62-66). As taught by Hahn, the nylon back panel **16** is preferably urethane-treated to fill in the needle holes created when the fabric is woven (see, e.g., Hahn, Col. 7, ll. 34-38). Moreover, the front and back panels **12** and **16** of the diaper by Hahn are stitched together in a quilting pattern to generally immobilize at least one middle panel **14** to maintain its position and thickness after repeated washing and drying cycles.

The Examiner alleges that the diaper of Hahn is an underpad. It is not. Moreover, the Examiner alleges that Figs. 3 and 4 of Hahn illustrate a reusable diaper. The multi-layered exploded cross-section, however, does not show any stitching that is needed to allow the repeated washing and drying cycles.

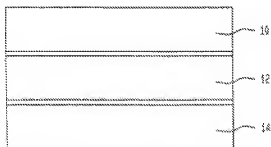
Applicants respectfully submit that the Examiner's position – that the only difference between the claimed invention and that of Hahn is in the use of adhesives in the interfacial areas, the use of moisture-curable plastic materials, and placing adhesives material on the edges of a surface to form a border pattern – is incorrect.

Applicants respectfully submit that if the differences between the subject matter sought to be patented and the cited references are such that the subject matter as a whole would NOT have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

This is true for at least four reasons. First, Hahn does not suggest or teach underpads, nor does Hahn provide any information how to use the multi-layered system for anything other than diapers and pull-up training pants. Second, Hahn solves the problem of providing a reusable, multi-layered diaper by stitching the front and back panels together in a quilting pattern. Third, there is nothing in the teaching of Hahn that would suggest that stitching in a quilting pattern is problematic or unsuitable. And fourth, if a person having ordinary skill in the art would have considered Hahn, then this person would have used stitching in a quilting pattern to prepare a multi-layered construction. This is the solution as taught by Hahn.

The Examiner combines Hahn with Levy. As the Examiner's admits, Levy does not solve the deficiencies of Hahn to render the claimed invention obvious.

As illustrated in the sole figure of Levy (reproduced to the right for reference and convenience), Levy discloses a highly absorbent, leak-proof and breathable diaper. The diaper is a 3-layer fabric incorporating a first layer **10** of terry cloth, a second layer **12** of polyurethane film, preferably of 0.002 inch thickness, and a third layer **14** of woven, or knit, fabric. Both the first and second layers, and the second and third layers, are laminated together with a urethane



adhesive. The first layer then serves as a fluid absorbing portion for the diaper, while the second and third layers form a leakage-preventing portion for it. (See, e.g., Levy, Abstract).

Levy discloses that its first and second layers **10,12**, and its second and third layers **12,14**, are each laminated together with a urethane adhesive. For highly satisfactory results, a non-flammable solvent-based urethane adhesive is employed, and of a two-component polyurethane system. In fabrication, the adhesive is applied between the layers **10,12**, and between the layers **12,14** using a cross-hatch, line-gravure, or dot-roller, so as to give a satisfactory level of bond strength and to ensure that the resulting laminations remain intact after machine washings. To construct the lamination, the adhesive is cured using heat for reactivation, and the laminate is allowed to sit for 24 hours to complete the curing process. In a preferred fabrication, the layers **12,14** are first laminated together, and after the lamination was allowed to sit for 24 hours, it was then laminated to the layer **10**.

It appears that the Examiner alleges that the diaper of Levy is an underpad. It is not. Moreover, the Examiner alleges the position that the 3-layer fabric may be used as an underpad. Again, this is not the case. A bed-ridden person would find the contact with the first layer **10**, and in particular the urine and waste absorbed in the terry cloth to be unbearable.

Further, the Examiner's allegation that the diaper of Levy does not require finishing is not supported by facts or evidence. Levy does not teach how to construct a diaper out of the diaper fabric. The Examiner's position that no finishing will be needed, respectfully, is wrong. Without finishing, the wearer of the diaper would be in contact with both the first, second and third layers, which must be unpleasant to the wearer.

Of more relevance is U.S. Patent No. 5,085,653 to Levy (herein "Levy II") (only now considered, since prior art to Hahn), which concerns durable and reusable incontinent underpads. The sole figure of Levy II is to the right. Even though the Examiner has not yet considered this reference, Applicants explain here why it also does not render the claimed invention anticipated or obvious, either alone or in combination.



In Levy II durable and reusable incontinent underpads comprising 4-layer fabrics, incorporating a first layer (10) of woven or knit fabric, a second layer (12) of non-woven felt, a third layer (14) of polyurethane film, and a fourth layer (16) of woven or knit fabric is disclosed.

Notably, Levy II teaches that the first and second layers are quilted together to form a fluid absorbing portion for the underpad, either with a sewing stitch process, an ultrasonic fusing process or other similar method. The third and fourth layers are laminated together with a urethane adhesive to form a leakage preventing portion for the pad. The second and third layers are also laminated together with the urethane adhesive.

Interestingly, Levy II does not consider joining the first layer (10) and the second layer (12) by laminating them together with a urethane adhesive. Applicants submit that a person having ordinary skill in the art to which the current invention pertains would rather conclude from Levy II that quilting the first and second layers together is essential. Quilting together the first layer (10) and the second layer (12), however, means that the stitches will be damaged when the underpads are subsequently cut to proper dimensions. Although finishing is not disclosed, finishing is essential to avoid delaminating as a result of the damaged stitching.

Next, The Examiner adds Tolbert to the combination of Hahn in view of Levy. Contrary to the Examiner's rejection and position, Tolbert does not solve the deficiencies of Hahn and Levy to render the claimed invention obvious.

Tolbert relates to a textile product constructed using curable adhesive threadless sewing and processes for producing same. As disclosed in the Summary of Tolbert, durable textile products may be made, that exhibit desirable aesthetics, such as flexibility, drapeability, and softness compared to textile products formed using conventional sewing process. The threadless sewing processes of Tolbert can be used with numerous fabrics including lighter weight fabrics, such as are often used with sheeting and apparel. The detailed description of Tolbert is disclosed in ¶ [0030] et seq. Fig. 1 of Tolbert illustrates a schematic side view of an apparatus and process useful for hemming a fabric. Thus, a fabric is finished by folding the fabric (Fig. 2), applying a curable hot melt adhesive to the folded fabric (Fig. 3), forming the hem (Fig. 4), and finally securing the hem (Fig. 5). The same hemming process is described in more detail. (See Tolbert, ¶¶ [0054] - [0067]).

Referring now to Fig. 6 of Tolbert, it illustrates a schematic side view of an apparatus and process for constructing a fabric. In this process, two fabrics are joined. In adhesive application

station 60 a bead of molten curable hot melt adhesive is directed along a simulated sewing path between the mated fabric surfaces of fabric layers 52 and 56 to form an adhesive seam (Id. at ¶ [0070]). Referring now to Fig. 9, Tolbert provides a process using hot melt adhesives to provide a finished appearance to a raw edge or selvage of a fabric (Id. at ¶ [0073]). This prevents raveling of discrete threads of the fabric.

Tolbert suggests a range of variations. (Id. at ¶ [0078]). These variations, however, have not been described in detail. Tolbert describes various textile articles that can be constructed by his process. (Id. at ¶[0080]). But underpads - i.e., articles that have an moisture-permeable top layer material; a moisture-absorption element and a moisture-impermeable bottom layer material, joined in such a way that the moisture-permeable top layer is both firmly attached, without adversely affecting the moisture-permeability of the top layer - are not disclosed in Tolbert.

The Examiner takes the position that the application of adhesive material to the edges of each surface on a multilayered material is equivalent to the Applicant's claim of patterning a border as the adhesives on the edge will create a border. Applicants respectfully submit that this is incorrect. Application of an adhesive material to the edges of each surface on a multilayered material would cause immediate problems when the underpad is cut to form. The joints produced by Tolbert would disappear and hence cause delamination. On the other hand, Applicants are not at all advocating joining the layers only at the edge or border. Rather, a pattern is proposed that will join the layers such that wrinkling is prevented and that there is no separation of the layers during washing of the underpad, even if the underpad is cut or trimmed to shape. A claim recitation of Applicants' pattern is that it does not adversely affect the moisture permeability of the top layer.

In the *Final Office Action*, the Examiner notes (with respect to the embodiment in ¶ [0015], middle of the paragraph) that this embodiment of Tolbert does not disclose any further finishing steps, the resultant article contains adherences for multiple layers, which would meet the present recitations in Claim 1. (*Final Office Action*, 5/12/2009, ¶ 5). Applicants respectfully request reconsideration. This Tolbert embodiment discloses the application of a single durable adhesive seam, wherein securing the textile fabrics to one another. A single seam, however, does not prevent wrinkling of the layers, nor will it prevent separation of the layers when the seam is damaged when the underpad is cut or trimmed to shape.

In addition, the Examiner alleges that Applicants place an adhesive material on the edges of a surface to form a border pattern. (Id. at ¶7). Once again, Applicants respectfully submit that this is not correct. A pattern where the adhesive material is only placed on the edges of the surface does not prevent wrinkling or delamination and is therefore outside the scope of Claim 1. Rather, the pattern should be sufficiently dense to prevent wrinkling and sufficiently open to prevent the material from becoming inflexible and to prevent the moisture permeable top layer from becoming moisture impermeable.

When Hahn, Levy, and Tolbert are combined, the combined teachings suggest and teach a diaper, not an underpad, having threadless seams, in particular along the edge portion of the fabrics. Indeed, as pointed out by the Examiner, the references teach to provide adhesives on the edges. (Id. at ¶7). This is clearly opposite to the teaching of the claimed invention.

Accordingly, the motivation to combine the above references to prepare an underpad as currently claimed can not be found in either of the references nor on the combination of same and Applicants respectfully submit that the claimed invention is patentable over the cited references.

#### **B. Claims 11-12 and 16-17 Are Patentable Over The Cited References**

As noted above, Claims 11-12 and 16-17 are rejected under 35 U.S.C. §103(a) as being unpatentable over Hahn in view of Levy and Tolbert as applied to Claims 8-10 and 15, and further in view of McIntyre. Applicants respectfully submit that McIntyre does not cure the deficiencies of Hahn, Levy, and Tolbert, and thus does not render the claimed invention obvious.

Applicants agree with the Examiner that the prior art is silent to the use of screen printing. The most important reason that the prior art is silent to the use of screen printing is that it provides for the application of the hot melt adhesive in the form of threadless seams or hems. Using the teaching of McIntyre in this respect has no advantages at all. Indeed, it would be difficult to prepare threadless seams or hems by the method of screen printing.

The Examiner alleges that it would be obvious to one with ordinary skill in the art to use a second screen printing section to coat a second layer of material. The motivation to combine the above references is drawn toward the increase in production and uniformity of the adhesive layer as shown by McIntyre.

Here, the Examiner confirms that the combinations of Hahn in view of Levy and Tolbert do not disclose the currently claimed underpad. The claimed invention, unlike the cited references, relate to an underpad, composed of a moisture permeable top layer, a moisture-absorption element, and a moisture impermeable bottom layer. None of these features are taught, suggested, or disclosed in McIntyre. Indeed, it is questionable whether McIntyre discloses any of the features of the claimed invention, in particular if it is taken into account that the invention is not merely concerned with the application of a hot melt adhesive, but the application with a particular pattern to prevent wrinkling, whilst keeping the top layer open. As a secondary reference, McIntyre fails to disclose this feature of the presently claimed invention.

In response to the Examiner's arguments relating to Claims 11-12 and 16-17, Applicants submit that a person of ordinary skill in the art would have no motivation to apply the adhesive deposition disclosed by Levy into the laminate of Hahn. (*Final Office Action*, 5/12/2009, ¶10). Moreover, the diaper of Levy is substantially similar to the diaper of Hahn. Hahn considers the permeability of the top layer material, whereas Levy does not. Even if one of ordinary skill were motivated to apply the adhesive deposition disclosed by Levy into the laminate of Hahn, then the essential feature of doing so in a particular pattern that is sufficiently dense to prevent wrinkling, whilst sufficient open to allow unimpeded passage of moisture is not disclosed.

With the Examiner, the Applicants agree that McIntyre discloses a method of screen printing of hot melt adhesives onto moving web substrates. McIntyre, however, is silent on the amount of hot melt pressure sensitive adhesives and/or that it should be applied in an amount sufficient to prevent wrinkling without adversely affecting the flexibility and permeability of the top layer material. This information is not found in Hahn, Levy or Tolbert. Thus, even if McIntyre is used as a teaching reference, combined with the references disclosed above, it would still not disclose all the features of the present invention.

In addition, it is neither illustrated nor obvious how to combine the teachings of McIntyre with that of Tolbert et al. (disclosing the application of an adhesive along the edge) to give good seam strength. It is neither illustrated nor obvious to combine the screen printing of McIntyre with the stitching of Hahn. Finally, a person skilled in the art might have combined the screen printing of McIntyre with the teachings of Levy, however only to produce highly absorbent, leak-proof and breathable diapers of little use when concerned about contact of moist with skin.



For the Examiner's convenience, Applicants note that the claimed invention does not relate to applying the adhesive along the border. The adhesive is applied in each of the interfacial regions in a pattern shape; for instance, with a dotted lining pattern that extends over the entire surface of the washable underpad. If a rectangular border is used, then as discussed in the present application, inside the rectangular border there may be carefully selected different pattern parts which are responsible for bonding between the three layers in that region.

While Levy discloses the use of dots, cross-hatching and/or lines to allow for bond strength and lamination washability, but Levy does not disclose patterns that prevent the passage of moisture from the top layer material to the absorption element from being impeded.

In conclusion, Applicants agree that a single disclosure containing all the presently claimed invention does not exist. The cited references disclose diapers and fabrics with threadless seams and hems. None of the cited references disclose of using a pattern such that wrinkling is prevented, as well as preventing delamination when the underpad is cut or trimmed, while guaranteeing the unimpeded passage of moisture. McIntyre is silent on this feature and provides no specific teaching in respect of this feature.

Applicants therefore respectfully request the reconsideration of the patentability of the claimed subject-matter. It is thus respectfully submitted that Claims 1 and 8, and all Claims ultimately dependent from Claims 1 and 8, are patentable over all the cited references.

#### **4. Fees**

This *Response* is being filed within six months of the *Final Office Action*. An extension of time fee of three months is believed due and submitted with this filing via EFS.

No additional claims fees are believed due, as the pending claim count as to both total number of claims, and independent claims, remain covered under the original filing fee.

The fees for the Request for Continued Examination (RCE) are also believed due and submitted with this filing via EFS.

Authorization is hereby expressly given to charge any fees due or credit any overpayment via Deposit Account No. 20-1507.

### **CONCLUSION**

By the present *Response*, this Application has been placed in full condition for allowance. Accordingly, Applicants respectfully request early and favorable action. Should the Examiner have any further questions or reservations, the Examiner is invited to telephone the undersigned Attorney at 404.885.3340.

Respectfully submitted,

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